Where Are Our Wetlands and How Are They Doing?

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Monitoring Council
Executive Director
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California Wetland Monitoring Workgroup

- Partnership of 24 state and federal agencies and non-governmental organizations

- Under the overarching guidance of the California Water Quality Monitoring Council

Workgroup's Mission

- Improve monitoring and assessment of wetland and riparian resources
  - Develop and implement a comprehensive wetland monitoring plan for California
  - Increase coordination and cooperation among local, state, and federal agencies, tribes, and non-governmental organizations
- Review technical and policy aspects of wetland monitoring tool development, implementation and use of data to improve wetland management in California

Products & Tools

- Wetland and Riparian Area Monitoring Plan
  - Framework for monitoring, assessment, and reporting
  - Based on Level 1-2-3 Framework of U.S. EPA
- California Rapid Assessment Method
  - *www.CRAMWetlands.org*
  - Cost-effective and defensible method for monitoring wetland condition
- EcoAtlas – *www.EcoAtlas.org*
  - Provides landscape context to aquatic resource extent, condition, and project information
  - Integrates maps, restoration information and monitoring results

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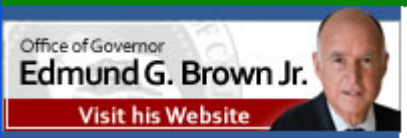
California Wetlands Portal

www.MyWaterQuality.ca.gov



- Cal/EPA
- Natural Resources Agency
- About the California Water Quality Monitoring Council

- Web Portal Partners
- Monitoring & Assessment Programs, Data Sources & Reports
- Water Quality Standards, Plans and Policies
- Regulatory Activities
- Enforcement Actions
- Research

- State & Regional Water Boards
  - Performance Report
  - About SWAMP
  - SWAMP Tools

Welcome to My Water Quality

This web portal, supported by a wide variety of public and private organizations, presents California water quality monitoring data and assessment information that may be viewed across space and time. Initial web portal development concentrates on four theme areas, with web portals to be released one at a time. Click the Contact Us tab for more information.

The Monitoring Council seeks to provide multiple perspectives on water quality information and to highlight existing data gaps and inconsistencies in data collection and interpretation, thereby identifying areas for needed improvement in order to better address the public's questions. Questions and comments should be addressed through the Contact Us tab.

IS OUR WATER SAFE TO DRINK?

Safe drinking water depends on a variety of chemical and biological factors regulated by a number of local, state, and federal agencies. *[Future Portal]*

IS IT SAFE TO SWIM IN OUR WATERS?

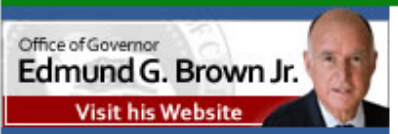
Swimming safety of our waters is linked to the levels of pathogens that have the potential to cause disease. More >>

IS IT SAFE TO EAT FISH AND SHELLFISH FROM OUR WATERS?

Aquatic organisms are able to accumulate certain pollutants from the water in which they live, sometimes reaching levels that could harm consumers. More>>

ARE OUR AQUATIC ECOSYSTEMS HEALTHY?

The health of fish and other aquatic organisms and communities depends on the chemical, physical, and biological quality of the waters in which they live. More>>



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AQUATIC HEALTH LINKS

- Stressors
- Laws, Regulations & Standards
- Regulatory Activities
- Enforcement Actions
- Research
- Monitoring Programs, Data Sources & Reports

Are Our Aquatic Ecosystems Healthy?

California has many types of aquatic habitats. Follow the links below to learn more ...

WETLANDS

Wetlands form along the shallow margins of deepwater ecosystems such as lakes, estuaries, and rivers. They also form in upland settings where groundwater or runoff makes the ground too wet for upland vegetation. More »»

ESTUARIES

Estuaries are unique habitats found where rivers and the ocean mix. They feature a diverse array of plants and animals adapted to life along the mixing zone. More »»

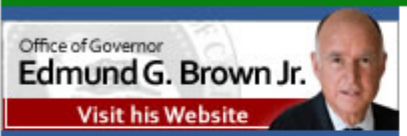
STREAMS, RIVERS & LAKES

California's streams and rivers flow through diverse habitats, from mountain canyons, valleys, deserts, estuaries and urban areas. Riparian woodlands develop along stream banks and floodplains, linking forest, chaparral, scrubland, grassland, and wetlands. California lakes, supporting deep water, wetlands, riparian woodlands, offer a quiet refuge for plants, animals and humans alike. More »»

OCEAN & COASTAL

California has 1,100 miles of shoreline and 220,000 square miles of state and federal oceanic habitat, featuring one of the world's most diverse marine ecosystems. More »»

(Updated 11/19/13)



California Wetlands

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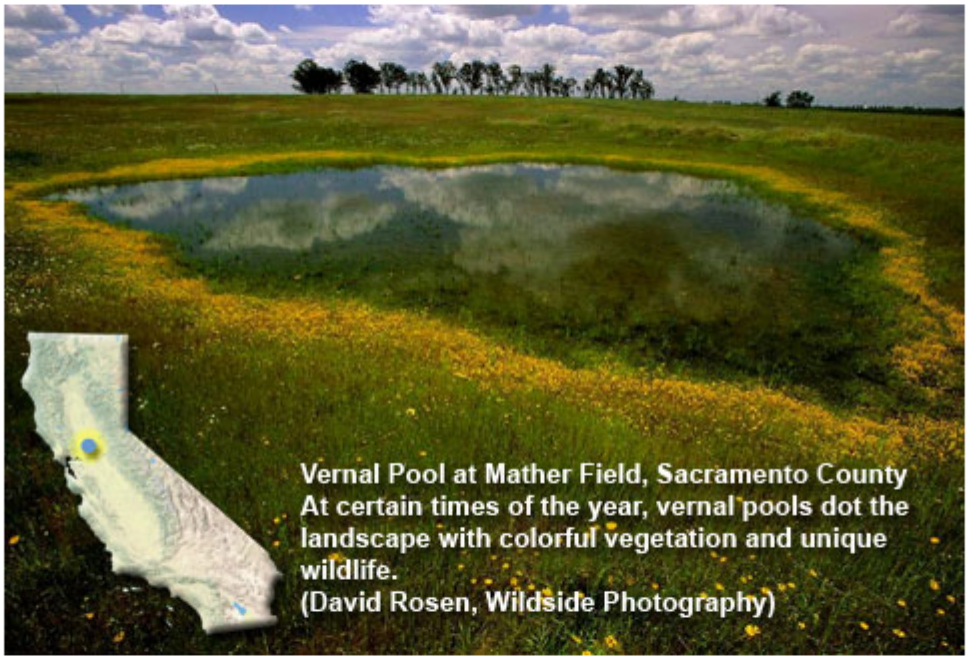

Click on an image above for more information

1/9

Wetlands have both aquatic and terrestrial characteristics. Wetlands form along the shallow margins of lakes, estuaries, and rivers, and in areas with high groundwater or shallow surface water, such as springs, wet meadows, ponds, and freshwater and tidal marshes. They often go through wet and dry cycles, and therefore support a unique array of life specially adapted to these conditions. Wetlands provide important habitat for birds, fish, and other wildlife. They support local food webs, contribute to flood protection, groundwater recharge, shoreline protection, and water filtration: all important ecosystem services.

California has lost more than 90% of its historical wetlands and today, many

QUESTIONS ANSWERED

What is the extent of our wetlands?

- Where did our numbers come from?
- Where are they?
- How much have we lost?
- What types are there?
- How do we classify them?
- What services do they provide?
- What is the status of mapping?

How healthy are our wetlands?

- How do we know how they're doing?
- How do we assess wetland health?
- What studies have documented wetland condition?

How are our wetlands protected?

- What regulations protect them?
- Where are wetlands being restored near me?

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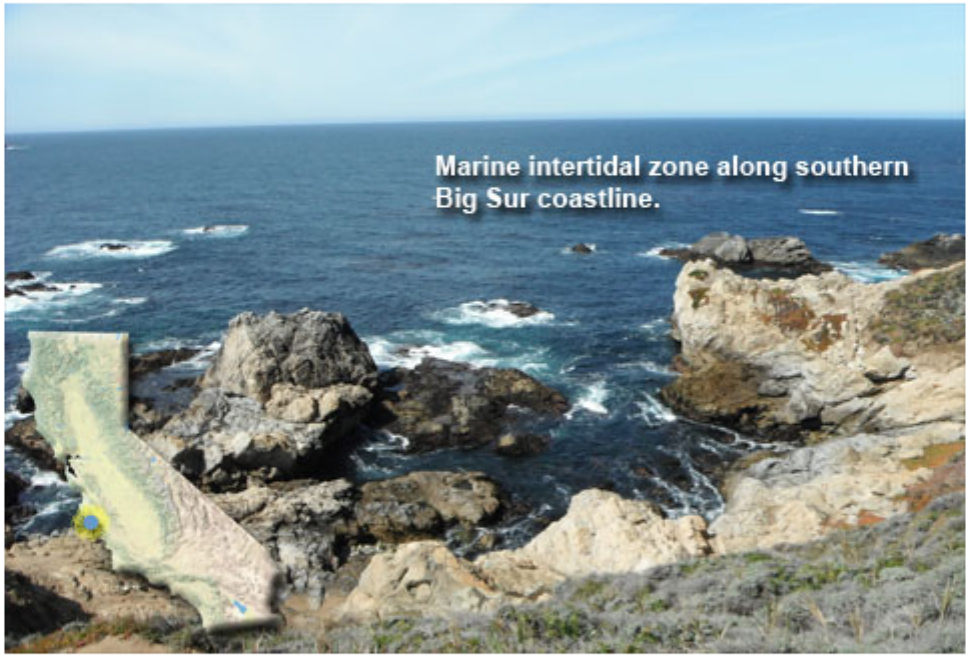

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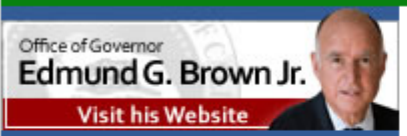
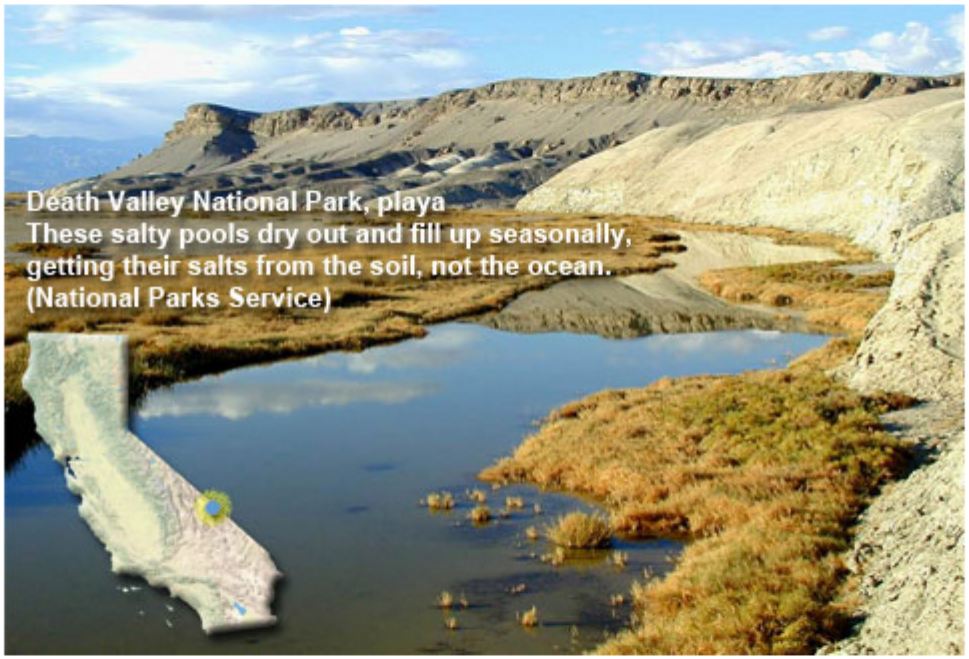


California Wetlands



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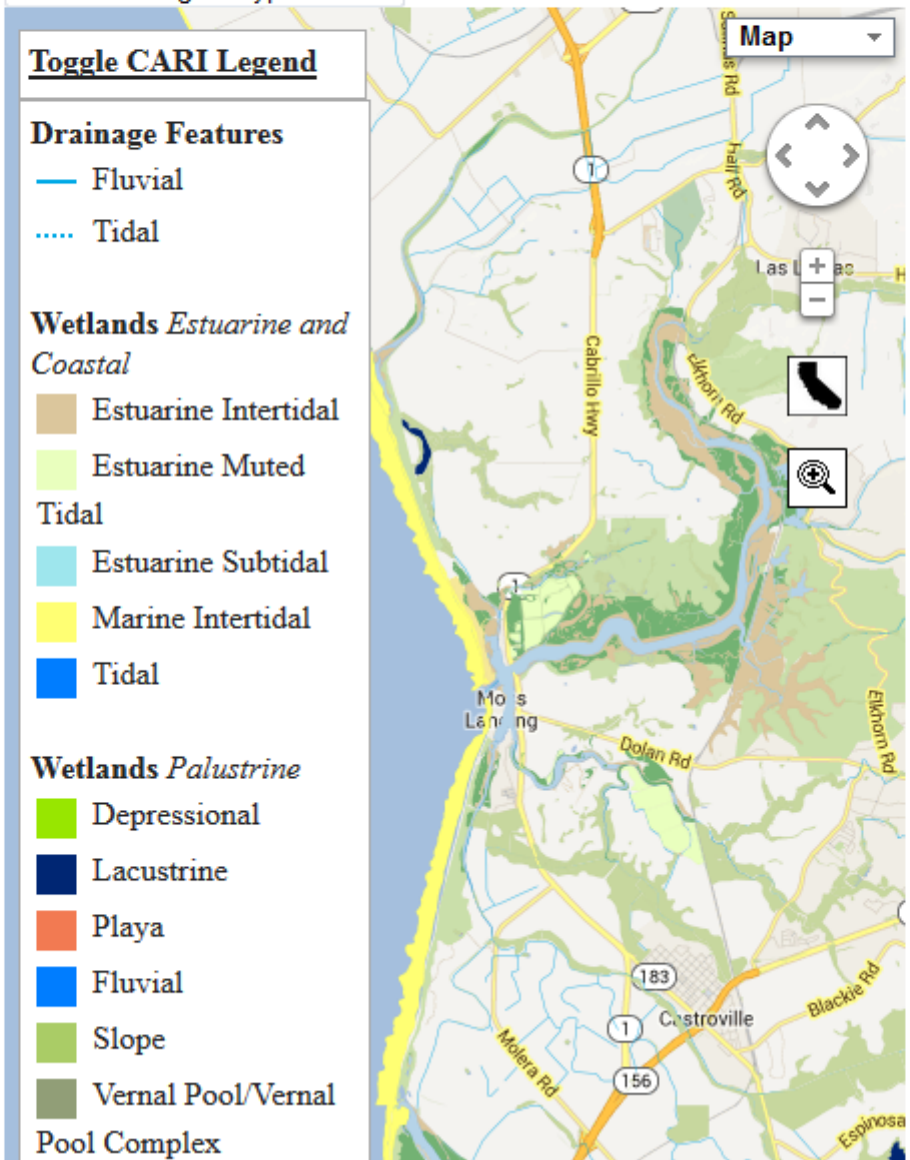
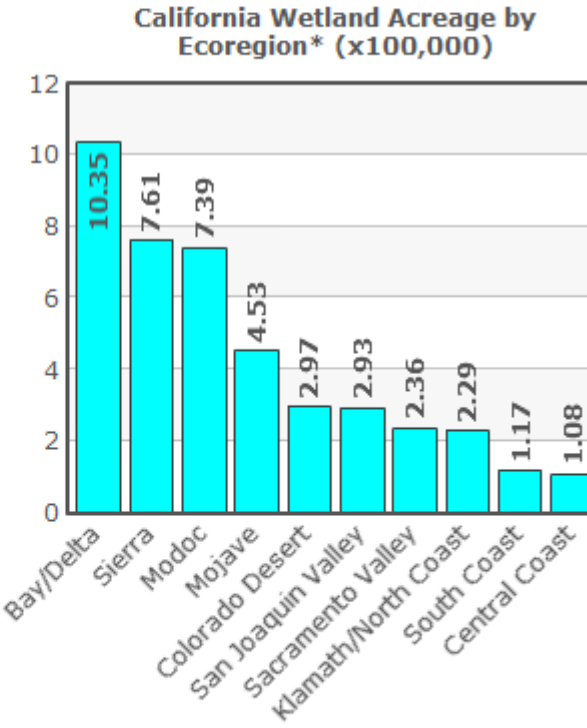
Where Are California Wetlands?

-- Select a Region Type --



Wetlands occur in every region of California, from the high Sierras to the deserts of the southwest, and form wherever water collects. They can vary from location to location be found along streams (riverine), in low points with slow drainage (depressional), at the edges of tidal water bodies (estuarine), at the edges of lakes (lacustrine), and around springs (slope).



* Note this chart does not include non-wetland open water types as listed in CARCS

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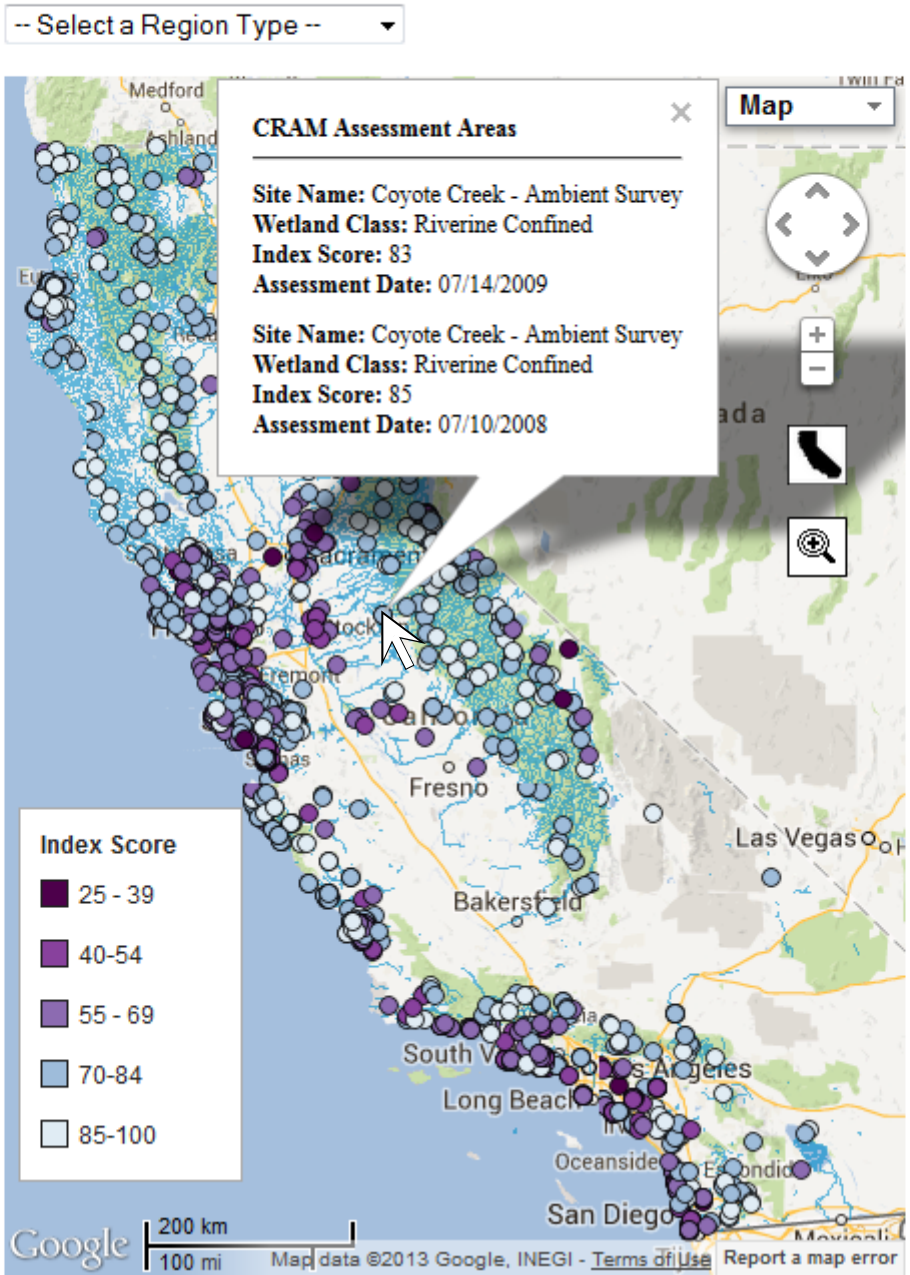
How Do We Assess Wetland Health?



Measurement of overall health of wetlands has long been an elusive goal for scientists and wetland managers. Methods of analysis were often restricted to individual agencies or organizations for limited purposes. The ability to compare conditions between places and programs was missing, and so we could not measure or understand trends at the watershed, regional and state level.

Today, we are moving to overcome this by standardization of wetland assessments. One way to measure the overall health of streams in California is to perform assessments using the California Rapid Assessment Method (CRAM). CRAM is a field-based diagnostic tool that, when used as directed, provides rapid, repeatable, and numeric assessment of the overall condition of a wetland.

CRAM assesses four overarching attributes of wetland condition: Buffer and Landscape Context, Hydrologic Regime, Physical Structure, and Biotic Structure. Each attribute is related to several attribute-specific metrics and submetrics that are evaluated in the field for a prescribed assessment area. The attribute scores are averaged to produce an overall index score. Attribute and index scores range from 25 (lowest possible) to a maximum of 100. In the context of CRAM, condition is evaluated based on observations made at the time of the assessment. Higher scores represent better condition and suggest a higher potential to provide the functions and

How Do We Know How California's Wetlands Are Doing?

WETLAND AND RIPARIAN AREA ASSESSMENT PLAN TOOL KIT

Comprehensive assessments of wetland health in California are challenging because standardized tools to evaluate the diversity of wetland types have never existed. The WRAMP (Wetland and Riparian Area Assessment Plan) was launched in 2010 to create standardized assessments of wetlands throughout California. WRAMP seeks to create a consistent approach to wetland classification, mapping, and monitoring that will allow for statewide assessments of wetland extent and condition.

California Wetland Monitoring Workgroup

- Californa Wetland Monitoring Workgroup - "Tenets of a State Wetland and Riparian Monitoring Plan" (WRAMP).

What is the WRAMP tool kit?

California's WRAMP Toolkit consists of standardized mapping and assessment methods that provide a comprehensive assessment of wetland extent and ecological integrity for the wetland within the context of the surrounding watershed. Assessments are conducted at three levels:

Landscape Assessment (Level 1)

(click to enlarge)

Uses remote sensing data and field surveys to inventory wetlands. The California Aquatic Resources Inventory and the National Wetlands Inventory are examples of Level 1 assessments.

Rapid Assessment (Level 2)

(click to enlarge)

Uses visible field diagnostics and existing data to assess conditions. CRAM is an example of a Level 2 assessment method.

Intensive Site Assessment (Level 3)

(click to enlarge)

Provides quantitative field data to give more precise answers to management questions. Bioassessments of the health of a particular organism within a wetland are an example of a Level 3 assessment. Level 3 methods can be used to calibrate and validate Level 1 and Level 2 methods, and to test hypotheses about the causes of habitat conditions.

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CRAM
California Rapid Assessment Method

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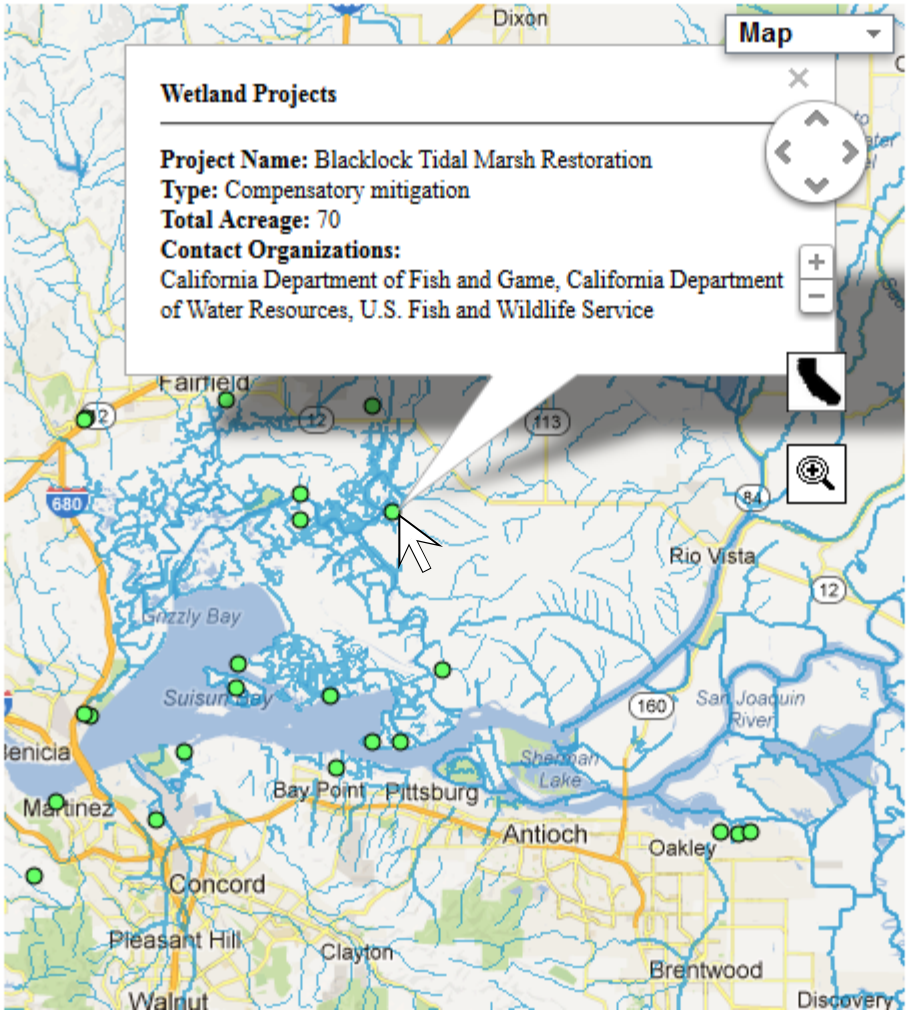
Where are Wetlands Being Restored Near Me?

-- Select a Region Type --



Restoration

California has made substantial progress over the last ten years in identifying, acquiring, restoring and enhancing thousands of acres of wetlands. From large scale restoration such as the South Bay Salt Pond Restoration Project to tiny vernal pool restoration projects, these efforts continue to stem the tide of wetland loss. The map on this page shows wetland restoration and improvement projects.

Many details about project are available through the California EcoAtlas. EcoAtlas files may include permit details, contact information, habitat plans, and monitoring reports.

The map provided here is incomplete. Hundreds of restoration projects statewide have been accomplished by individuals, local watershed groups, conservation districts, agencies, and multi-agency work groups. We are working to update and improve this map.

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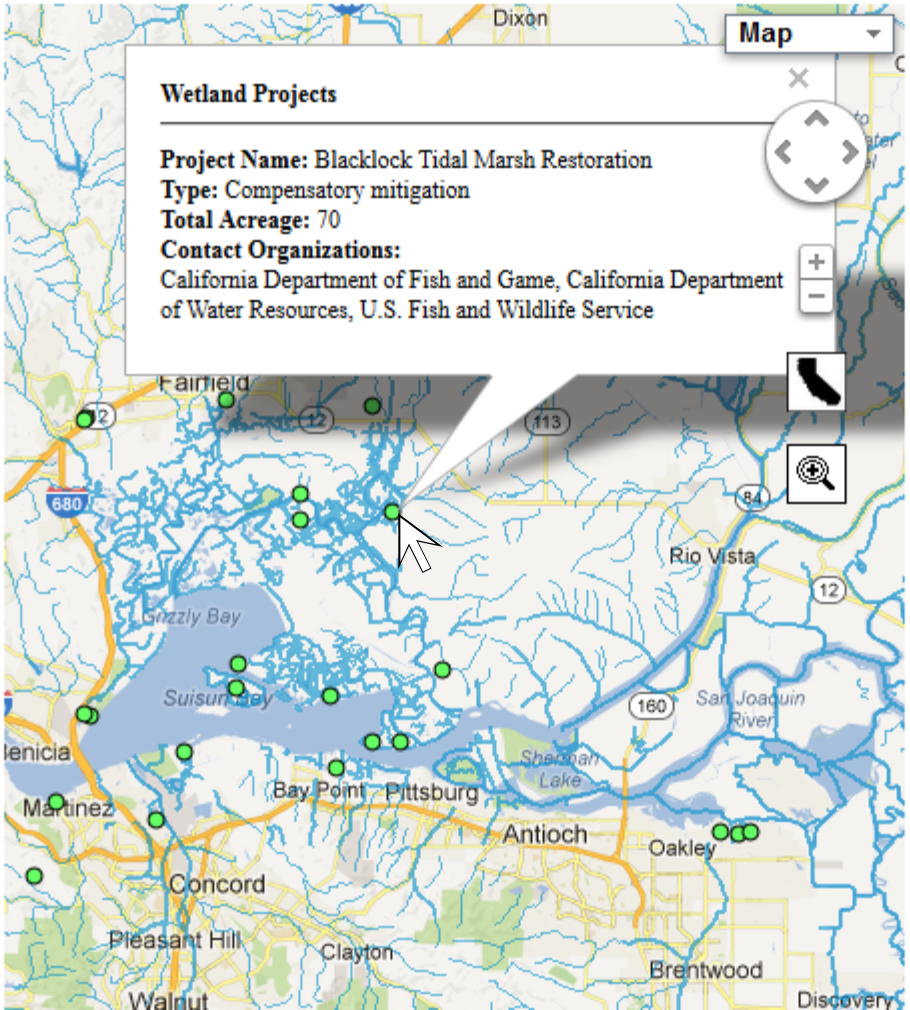

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EcoAtlas

How Are California's Wetlands Protected?

California's unique and vulnerable wetlands are often impacted adversely by human use, and are therefore protected by a combination of regulations, incentives, and grant-funded restoration programs. There are two primary ways in which state, federal, and other agencies within California are protecting wetlands:

1. Through programs that regulate the activities that occur within wetlands, and
2. Through programs that protect, conserve, and manage wetland resources.

A particular agency may have both a regulatory and resource management role.

Quick Links

Regulation | Incentives | Restoration | How Can I Make a Difference?

Regulation

The primary regulatory tool for protecting wetlands in the United States is Section 404 of the Clean Water Act (CWA), implemented and enforced by the regulatory branch of the U.S. Army Corps of Engineers. This federal law requires that a project that includes changes in land use which might affect wetlands must file for a permit. These permits require the avoidance of all significant negative impacts to the aquatic environment, including the impacted wetlands. If impacts cannot be avoided, then they must be minimized to reduce degradation to the system. Unavoidable impacts must be compensated through creation or restoration of other wetland areas in support of the federal and state no net-loss policies.

The U.S. Environmental Protection Agency (EPA) is responsible for implementing federal laws designed to protect various resources, including wetlands. EPA activities which affect wetlands include, but are not limited to, developing rules to regulate municipal and industrial wastewater discharge, and stormwater discharge; overseeing drinking water quality; and overseeing U.S.ACE regulatory activities pertaining to wetlands protection.

In California, no single agency has authority over all aquatic resources. Regulation of wetlands and streams falls under the authority of six state and federal agencies leading to a complex and varied regulatory structure.

The State Water Resources Control Board and the nine Regional Water Quality Control Boards (Regional Water Boards) are the state's primary water quality regulatory agencies, tasked with protecting the beneficial uses of the waters of the state under the California Water Code.

The California Coastal Commission is a State coastal management and regulatory agency that, in partnership with local governments, is responsible for implementation of the California Coastal Management Program. The Coastal Commission's primary role in regards to wetland protection is the regulation of coastal development affecting wetlands in California's coastal zone. The Coastal Commission's jurisdiction does not extend into or around San Francisco Bay, where development is regulated by the San Francisco Bay Conservation and Development Commission.

WHO PROTECTS CALIFORNIA'S WETLANDS?

Explore the websites of agencies who have a role in wetland protection and management.

Federal Regulatory Agencies

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- National Marine Fisheries Service

State Regulatory Agencies

- California Environmental Protection Agency
- State Water Resources Control Board and Regional Water Quality Control Boards
- Department of Water Resources
- California Department of Fish and Wildlife
- California Coastal Commission
- San Francisco Bay Conservation and Development Commission

Federal Resource Agencies

- U.S. Fish & Wildlife Service
- National Park Service
- Natural Resources Conservation Service

State Resource Agencies

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- Department of Parks and Recreation

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